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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,260	11/01/2001	Toshihiro Tomita	791 169	1318

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EXAMINER

JOHNSON, CHRISTINA ANN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/980,260

Applicant(s)

TOMITA ET AL.

Examiner

Christina Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-48 is/are pending in the application.
4a) Of the above claim(s) 29-48 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 25-28 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Sul et al.

Sul et al. (US 5,772,980) discloses the preparation of a zeolite from a synthesis mixture using TPAOH/Si = 0.032 mole (column 4, Example 1). The crystalline zeolite after synthesis is considered to meet the crystallized zeolite and the zeolite during synthesis is considered to meet a zeolite under crystallization.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Sul et al.

3. Claims 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Mueller et al.

Mueller et al. (US 5,413,975) discloses the preparation of a zeolite using a tetralkylammonium ion/silica ratio in the range of 0.042:1-0.2:1 (column 4, lines 10-15). Suitable ions include tetrapropylammonium (column 4, lines 4-10). The crystalline zeolite after synthesis is considered to meet the crystallized zeolite and the zeolite during synthesis is considered to meet a zeolite under crystallization.

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As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Mueller et al.

4. Claims 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lai.

Lai (US 5,824,617) discloses the preparation of a zeolite using a tetraammonium bromide to silica ratio of 0.02-1 (column 8, lines 5-20). The crystalline zeolite after synthesis is considered to meet the crystallized zeolite and the zeolite during synthesis is considered to meet a zeolite under crystallization.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Lai.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/23378 in view of Lai.

WO 00/23378 discloses a zeolite membrane composition comprising a zeolite membrane coated on a substrate of zeolite having the same or similar composition (page 3). It is taught that the zeolite is formed from a synthesis solution of silica sol and a template of tetrapropylammonium hydroxide or bromide (page 4). The template from

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the zeolite substrate and zeolite layer are removed in one step (pages 3-4). Suitable zeolites include MFI (page 4).

The difference between the reference and the claims is that the reference does not disclose the TPA/silica ratio.

Lai (US 5,824,617) discloses the preparation of a zeolite membrane of MFI structure using a TPA/silica ratio in the range 0.02-1 (column 8, lines 5-20).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the composition of the WO reference to include the use of the ratio taught by Lai. One of ordinary skill would have been motivated to do so in light of the teaching by Lai that such a ratio is suitable to produce the zeolite composition desired by the WO reference. Because both references are concerned with the synthesis of MFI zeolites from silica and TPA, one would have a reasonable expectation of success from the combination.

7. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al. in view of Lai.

Lai et al. (US 6,037,292) discloses a zeolite membrane composition comprising a first zeolite layer in contact with a second zeolite layer (column 2, lines 35-50). It is taught that the zeolite is formed from a synthesis solution of silica and a template of tetrapropylammonium bromide (column 3, lines 55-65). The template from the two zeolite layers are removed in one step (column 4, lines 1-15). Suitable zeolites include MFI (column 3, lines 55-60).

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The difference between the reference and the claims is that the reference does not disclose the TPA/silica ratio.

Lai (US 5,824,617) discloses the preparation of a zeolite membrane of MFI structure using a TPA/silica ratio in the range 0.02-1 (column 8, lines 5-20).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the composition of the Lai et al. reference to include the use of the ratio taught by Lai. One of ordinary skill would have been motivated to do so in light of the teaching by Lai that such a ratio is suitable to produce the zeolite composition desired by Lai et al. Because both references are concerned with the synthesis of MFI zeolites from silica and TPA, one would have a reasonable expectation of success from the combination.

Response to Arguments

8. Applicant's arguments filed February 24, 2005 have been fully considered but they are not persuasive.

With respect to the Sul reference, applicant argues that the zeolite according to Sul does not have three-dimensional structures formed from materials including the zeolite, the structures including pores defined between different zeolite particles. This argument has been considered but is not persuasive. It does not appear that applicant's arguments are commensurate in scope with what has been claimed. These features are not required by the instant claims. The reference discloses zeolite particles having a shape which would meet the instant claims.

With respect to the Mueller reference, applicant argues that Mueller does not disclose structures in which particles of zeolite are deposited on a molding and built up three dimensionally in a thickness so as to result in a porous zeolite shaped body in which three dimensional structures are formed from materials including the zeolite, the structures including pores defined between different zeolite particles. This argument has been considered but is not persuasive. It does not appear that applicant's arguments are commensurate in scope with what has been claimed. These features are not required by the instant claims. The reference discloses zeolite particles having a shape which would meet the instant claims.

With respect to Lai '617, applicant argues membranes are not shaped bodies and further argues that the Lai membranes are not three dimensional structures formed from materials including the zeolite, the structures including pores defined between different zeolite particles. This argument has been considered but is not persuasive. It does not appear that applicant's arguments are commensurate in scope with what has been claimed. These features are not required by the instant claims. The reference discloses zeolite particles having a shape which would meet the instant claims.

With respect to the rejection under 103(a) over WO '378 in view of Lai '617, applicant argues that it would not have been obvious to modify the WO reference by employing the claimed ratio in making the porous substrate of the WO reference because the Lai '617 reference relates to the preparation of a zeolite membrane not to preparation of a porous substrate made of zeolite. However, this argument has been considered but is not persuasive. The WO reference specifically requires two layers of

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zeolite having the same or similar composition, both layers made from the same starting template materials. One of ordinary skill would expect that the same synthesis composition including the claimed ratio would produce the desired product, whether its referred to as a zeolite substrate or zeolite membrane. Additionally, this argument does not appear pertinent to the rejection of claims 25-26.

With respect to the rejection under 103(a) over Lai '292 in view of Lai '617, applicant argues that it would not have been obvious to modify the primary reference by employing the claimed ratio in making the porous substrate of the primary reference because the Lai '617 reference relates to the preparation of a zeolite membrane not to preparation of a porous substrate made of zeolite. However, this argument has been considered but is not persuasive. The primary reference specifically requires two layers of zeolite having the same or similar composition, both layers made from the same starting template materials. One of ordinary skill would expect that the same synthesis composition including the claimed ratio would produce the desired product, whether its referred to as a zeolite substrate or zeolite membrane. Additionally, this argument does not appear pertinent to the rejection of claims 25-26.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


10. This application contains claims 29-48 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Christina Johnson
Patent Examiner
Art Unit 1725
4/19/05

CAJ
April 19, 2005